

## **Microsoft 2276 & 2277 Combination Class Implementing, Managing, and Maintaining a Microsoft Windows Server 2003 Network Infrastructure: Network Services**

### **Introduction**

This 5 day, instructor-led course provides students with the Skills and knowledge necessary to configure a Windows-based computer to operate in a Microsoft Windows Server™ 2003 networking infrastructure.

IT also provides students with the knowledge and Skills to implement, manage, and maintain a Microsoft Windows Server™ 2003 network infrastructure. The course is intended for systems administrator and systems engineer candidates who are responsible for implementing, managing, and maintaining server networking technologies. These tasks include implementing routing; implementing, managing, and maintaining Dynamic Host Configuration Protocol (DHCP), Domain Name System (DNS), and Windows Internet Name Service (WINS); securing Internet Protocol (IP) traffic with Internet Protocol security (IPSec) and certificates; implementing a network access infrastructure by configuring the connections for remote access clients; and managing and monitoring network access.

### **Audience**

This course is intended for individuals who are employed as or seeking employment as a systems administrator or systems engineer.

### **At Course Completion**

After completing the course, students will be able to:

- Configure routing by using the Routing and Remote Access service.
- Allocate IP addressing by using DHCP.
- Manage and monitor DHCP.
- Resolve names.
- Resolve host names by using DNS.
- Manage and monitor DNS.
- Resolve network basic input/output system (NetBIOS) names by using WINS.
- Secure network traffic by using IPSec and certificates.
- Configure network access.
- Manage and monitor network access.

### **Prerequisites**

Before attending this course, students must have:

- A+ certification or equivalent knowledge and Skills
- Network+ certification or equivalent knowledge and Skills.
- Course 2274: Managing a Microsoft Windows Server 2003 Environment, or have equivalent knowledge and Skills.

## **Course Outline (MS#2276 Curriculum)**

### **Module 1: Reviewing the Suite of TCP/IP Protocols**

Topics: This module reviews the suite of TCP/IP protocols. By understanding the function of each of the protocols and how the protocols relate to each other, you have the context for understanding network administration tasks and network troubleshooting.

- Overview of the OSI Model
- Overview of the TCP/IP Protocol Suite
- Viewing Frames Using Network Monitor

Skills: After completing this module, students will be able to:

- Describe the architecture of the TCP/IP protocol layers.

- Associate the protocols of the TCP/IP suite with those of the OSI model.
- Describe the function of the protocols at each layer of the TCP/IP model.
- Describe how a frame moves through the TCP/IP layers and what happens at each layer.
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### **Module 2: Assigning IP Addresses in a Multiple Subnet Network (MS#2276 Curriculum)**

Topic: This module explains how to construct and assign IP addresses and how to isolate addressing issues associated with the IP routing process.

- Assigning IP Addresses
- Creating a Subnet
- Using IP Routing Tables
- Overcoming Limitations of the IP Addressing Scheme

Skills: After completing this unit, students will be able to:

- Convert IP Addresses from decimal to binary.
- Create a subnet.
- Calculate a subnet mask.
- Use an IP routing table.
- Create subnets using VLSM and CIDR.
- Reduce the number of wasted IP addresses.

### **Course Outline (MS#2277 Curriculum)**

#### **Module 1: Configuring Routing by Using Routing and Remote Access**

Topics: This module provides you with the knowledge and Skills to configure a routing solution for your network environment.

- Multimedia: The Role of Routing in the Network Infrastructure
- Enabling and Configuring the Routing and Remote Access Service
- Configuring Packet Filters

Lab A: Configuring Routing by Using Routing and Remote Access

- Identifying and Resolving Common Issues When Configuring Routing and Packet Filters

Skills: After completing this module, students will be able to:

- Describe the role of routing in the network infrastructure.
- Enable and configure the Routing and Remote Access service.
- Configure packet filters.

#### **Module 2: Allocating IP Addressing by Using Dynamic Host Configuration Protocol (DHCP) (MS#2277 Curriculum)**

Topic: This module provides you with the knowledge and Skills to allocate IP addressing in a network environment.

- Multimedia: The Role of DHCP in the Network Infrastructure
- Adding and Authorizing a DHCP Server Service
- Configuring a DHCP Scope
- Configuring a DHCP Reservation
- Configuring DHCP Options
- Configuring a DHCP Relay Agent

Lab: Identifying and Resolving Common Issues When Allocating IP Addressing by Using DHCP

- Identifying and Resolving Common Issues When Allocating IP Addressing by Using DHCP

Skills: After completing this unit, students will be able to:

- Describe the role of DHCP in the network infrastructure.

- Add and authorize a DHCP Server service.
- Configure a DHCP scope.
- Configure DHCP options.
- Configure a DHCP reservation.
- Configure a DHCP relay agent.

### **Module 3: Managing and Monitoring Dynamic Host Configuration Protocol (DHCP) (MS#2277 Curriculum)**

Topics: This module provides you with the knowledge and Skills to manage the DHCP service to reflect changing client IP addressing needs. It also provides you with the knowledge and Skills to monitor DHCP server performance, because the DHCP environment is dynamic.

- Managing a DHCP Database
- Monitoring DHCP
- Applying Security Guidelines for DHCP

Lab: Managing and Monitoring DHCP

- Managing and Monitoring DHCP

Skills: After completing this module, students will be able to:

- Manage a DHCP database.
- Monitor DHCP.
- Apply security guidelines for DHCP.

### **Module 4: Resolving Names (MS#2277 Curriculum)**

Topics: This module provides you with the knowledge and Skills to assign computer names to the IP addresses of the source and destination hosts, and then use the computer name to contact the hosts.

- Multimedia: Introduction to the Name Resolution Process
- Viewing Names on a Client
- Configuring Host Name Resolution
- Configuring NetBIOS Name Resolution

Lab: Resolving Names

- Resolving Names

Skills: After completing this unit, students will be able to:

- Describe the name resolution process.
- View names on a client.
- Configure host name resolution.
- Configure NetBIOS name resolution.

### **Module 5: Resolving Host Names by Using Domain Name System (DNS) (MS#2277 Curriculum)**

Topics: This module provides you with the knowledge and Skills to resolve host names by using Domain Name System.

- Multimedia: The Role of DNS in the Network Infrastructure
- Installing the DNS Server Service
- Configuring the Properties for the DNS Server Service
- Configuring the DNS Zones
- Configuring DNS Zone Transfers
- Configuring DNS Dynamic Updates
- Configuring a DNS Client
- Delegating Authority for Zones

Lab: Resolving Host Names by Using Domain Name System

- Configuring an Alias Resource Record
- Configuring a Secondary Forward Lookup Zone

Skills: After completing this unit, students will be able to:

- Describe the role of DNS in the network infrastructure.
- Install the DNS Server service.
- Configure the properties for the DNS Server service.
- Configure the DNS zones.
- Configure DNS zone transfers.
- Configure dynamic updates.
- Configure a DNS client.
- Delegate authority for zones.

### **Module 6: Managing and Monitoring Domain Name System (DNS) (MS#2277 Curriculum)**

Topics: This module provides you with the knowledge and Skills to manage and monitor DNS servers to ensure that they are functioning properly and to optimize network performance.

- Configuring the Time-to-Live Value
- Configuring Aging and Scavenging
- Integrating DNS and WINS
- Testing the DNS Server Configuration
- Verifying that a Resource Record Exists by Using Nslookup, DNSCmd, and DNSLint
- Monitoring DNS Server Performance

Lab: Managing and Monitoring DNS

- Verifying a Record Using NSlookup
- Configuring and Viewing DNS Debug Logging

Skills: After completing this unit, students will be able to:

- Configure the Time-to-Live (TTL) value.
- Configure aging and scavenging.
- Integrate DNS with WINS.
- Test the DNS server configuration.
- Verify that a resource record exists by using the Nslookup, DNSCmd, and DNSLint command-line utilities.
- Monitor DNS server performance.

### **Module 7: Resolving NetBIOS Names by Using Windows Internet Name Service (WINS) (MS#2277 Curriculum)**

Topic: This module provides you with the knowledge and Skills to use WINS to register NetBIOS names and resolve them to IP addresses.

- Multimedia: The Role of WINS in the Network Infrastructure
- Installing and Configuring a WINS Server
- Managing Records in WINS
- Configuring WINS Replication
- Managing the WINS database

Lab: Resolving NetBIOS Names by Using Windows Internet Name Service (WINS)

- Resolving WINS Server Configuration Issues

Skills: After completing this unit, students will be able to:

- Describe the role of WINS in the network infrastructure.
- Install and configure a WINS server.
- Configure WINS replication.
- Manage records in WINS.
- Manage a WINS database.

### **Module 8: Securing Network Traffic by Using IPSec and Certificates (MS#2277 Curriculum)**

Topics: This module provides you with the knowledge and Skills to secure network traffic and to use certificates with IPSec for increased security.

- Implementing IPSec
- Implementing IPSec with Certificates
- Monitoring IPSec

Lab: Securing Network Traffic

- Configuring IPSec

Skills: After completing this unit, students will be able to:

- Implement IPSec.
- Implement IPSec with certificates.
- Monitor IPSec.

### **Module 9: Configuring Network Access (MS#2277 Curriculum)**

Topics: This module provides you with the knowledge and Skills to configure a server with the Routing and Remote Access service, create appropriate remote access connections on a network access server, and configure users' access rights

- Introduction to a Network Access Infrastructure
- Configuring a VPN Connection
- Configuring a Dial-up Connection
- Configuring a Wireless Connection
- Controlling User Access to a Network
- Centralizing Network Access Authentication and Policy Management by Using IAS

Lab: Configuring Network Access

- Configuring Network Access

Skills: After completing this unit, students will be able to:

- Describe a network access infrastructure.
- Configure a virtual private network (VPN) connection.
- Configure a dial-up connection.
- Configure a wireless connection.
- Control remote user access to a network.
- Centralize authentication and policy management for network access by using Internet Authentication Service (IAS).

### **Module 10: Managing and Monitoring Network Access (MS#2277 Curriculum)**

Topics: This module provides you with the knowledge and Skills to manage and monitor network access.

- Managing the Network Access Services
- Configuring Logging on a Network Access Server
- Collecting and Monitoring Network Access Data

Lab: Managing and Monitoring Remote Access

- Monitoring a Remote Access Server

Skills: After completing this unit, students will be able to:

- Manage the network access services.
- Configure logging on the network access server.
- Collect and monitor network access data.



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Learning Solutions

### **Module 11: Managing and Monitoring Network Access (MS#2277 Curriculum)**

This module provides you with the knowledge and skills to manage and monitor network access.

#### Lessons

- Managing the Network Access Services
- Configuring Logging on a Network Access Server
- Collecting and Monitoring Network Access Data

#### Lab A: Managing and Monitoring Remote Access

- Monitoring a Remote Access Server

After completing this module, students will be able to:

- Manage the network access services.
- Configure logging on the network access server.
- Collect and monitor network access data.